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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/772,398	02/06/2004	Toshio Matsumoto	P24925	5023
7055 7590 05/04/2007 GREENBLUM & BERNSTEIN, P.L.C. 1950 ROLAND CLARKE PLACE RESTON, VA 20191			EXAMINER LOPEZ, CARLOS N	
			ART UNIT 1731	PAPER NUMBER
			NOTIFICATION DATE 05/04/2007	DELIVERY MODE ELECTRONIC

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

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Office Action Summary	Application No. 10/772,398	Applicant(s) MATSUMOTO, TOSHIO	
	Examiner Carlos Lopez	Art Unit 1731	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 2/15/07.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-11 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-7 and 9-12 is/are rejected.
- 7) ☒ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 06 February 2004 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
 Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
 Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date <u>1 IDS</u> . | 6) <input type="checkbox"/> Other: _____ |

Allowable Subject Matter

The indicated allowability of now cancelled claim 8 is withdrawn in view of the newly discovered reference(s) to Ask a Scientist: Temperature and Surface Tension and article titled Surface Tension, both referred to as NPL. Both NPL teach the general principle that bubble formation, hence frothing, is depended on temperature; the higher the temperature the harder it is to form bubble formation. Rejections based on the newly cited reference(s) follow.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 1-2,4,7,9,11 are rejected under 35 U.S.C. 103(a) as being unpatentable over JP 63-40782 (782) in view of Ask a Scientist: Temperature and Surface Tension or article titled Surface Tension, both referred to as NPL. '782 et al discloses a method of making porous ceramic sintered bodies. The method, as disclosed in example 1, comprises: 1) preparing a slurry comprising a calcium phosphate based ceramic powder, a deflocculating agent (deemed as the claimed water-soluble high molecular compound) and a foaming agent (deemed as the claimed nonionic surface active agent ; (2) stirring said slurry vigorously to froth said slurry; and (3) solidifying the frothed slurry into a gel, and (4) drying and sintering said gel. It is noted that the deflocculating agent used in example one, is deemed as a polyacrylic acid, see page 2 of the certified

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translation, which as noted by applicant in page 7 of the specification can be used as a water-soluble high molecular compound.

'782 does not disclose the temperature at which stirring occurs in order to foam the slurry. However, it is widely known that at lower temperatures, foaming, bubble formation, is easier to achieve than at higher temperatures. As shown by the above noted NPL's it is widely known that bubble formation, hence frothing, is depended on temperature. At higher temperature it is harder to form bubbles. Thus, it would be obvious to a person of ordinary skill in the art at the time the invention was made, recognizing that temperature is a result effective variable would have conducted routine experimentation to determine the optimum temperature range that would provide sufficient bubble formation/ frothing.

As for claim 2, the calcium phosphate used has a particle size of 3 μ m or less, see example 1.

As for claims 4 and 12, see bridging paragraph of pages 5-6 noting the claimed fatty acid alkanolamide which encompasses the claimed oxide recited in claim 12.

As for claim 7 '782 does not disclose the claimed stirring conditions. However, in view that '782 stir the slurry to provide a froth, it would have been obvious to a person of ordinary skill in the art to have conducted routine experiments to determine the optimum stirring conditions

As for claim 9, 782 does not disclose the use of a foaming agent free of a metal ion or sulfate.

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As for claim 11, page 1 of the certified translation notes of using a hydroxyapatite.

Claims 1, 3,4,7,9, and 11 are rejected under 35 U.S.C. 103(a) as being unpatentable over Imura (GB 2348872) in view of Ask a Scientist: Temperature and Surface Tension or article titled Surface Tension, both referred to as NPL, or alternatively over Imura (US 6,340,648) in view of Ask a Scientist: Temperature and Surface Tension article titled Surface Tension, both referred to as NPL. For citation purposes, the GB 2348870 patent will be used. Imura discloses a method of making a calcium phosphate porous sintered body as a substitute for bone or tooth material. The method, as disclosed in example 1, comprises: 1) preparing a slurry comprising hydroxyapatite, a cross-linking polymerizable organic compound (deemed as the claimed water-soluble high molecular compound) and a foaming agent (deemed as the claimed nonionic surface active agent ; (2) stirring said slurry vigorously to froth said slurry; and (3) solidifying the frothed slurry into a gel, and (4) drying and sintering said gel.

Imura's GB and US patent do not disclose the temperature at which stirring occurs in order to foam the slurry. However, it is widely known that at lower temperatures, foaming, bubble formation, is easier to achieve then at higher temperatures. As shown by the above noted NPL's it is widely known that bubble formation, hence frothing, is depended on temperature. At higher temperatures, it is harder to from bubbles. Thus, it would be obvious to a person of ordinary skill in the art at the time the invention was made, recognizing that temperature is a result effective

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variable would have conducted routine experimentation to determine the optimum temperature range that would provide sufficient bubble formation/ frothing in Imura's method.

As for claim 3, page 10 of Imura notes using methyl cellulose as the cross-linking polymerizable organic compound.

As for claim 4, claim 7 of Imura notes using species of the claimed surface active agents.

As for claim 7, Imura does not disclose the claimed stirring conditions. However, in view that both Imura stirs the slurry to provide a froth, it would have been obvious to a person of ordinary skill in the art to have conducted routine experiments to determine the optimum stirring conditions

As for claim 9, Imura is silent disclosing a metal or sulfate group.

As for claim 11, see above noting the claimed hydroxyapatite.

Claims 5-6 are rejected under 35 U.S.C. 103(a) as being unpatentable over Imura (GB 2348872) or Imura (US 6,340,648) in view of Ask a Scientist: Temperature and Surface Tension or article titled Surface Tension, both referred to as NPL, and in further view of JP 3-131580 ('580); or JP 63-40782 (782) in view of Ask a Scientist: Temperature and Surface Tension article titled Surface Tension, both referred to as NPL, and in further view of JP 3-131580 ('580). The British and US patent of Imura and JP '782 are silent disclosing the claimed % weight of the foaming agent (surface active agent), thickening agent (high molecular compound), and ceramic. However, JP '580 discloses the claimed %weight. In particular, example 1 of '580 notes of using 18-45%

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of a ceramic powder, .5% of foaming agent and .5% of a thickening agent to subsequently provide for a porous sintered ceramic body that can be used as a bone filler or material. At the time the invention was made it would have been obvious to a person of ordinary skill in the art to have used known compositions of foaming agents, thickening agents and ceramic as taught by '580 absent any indication by either Imura or '782 in order to make the desired porous ceramic sintered body used in synthetic bone material.

It is noted that claim 5 provides arbitrary wt%, thus .5% of 18%wt of ceramic is about 2 part of high molecular compound or surface active agent, assuming that the part by weight is based in the parts by weight of the ceramic. Meaning that the 18% by weight of ceramics is deemed as being 100part and the claimed parts by weight of the foaming and thickening agents are based, or relative to on the supplied ceramic because claim 5 does specify if the part by weight is relative to the weight of the slurry or the supplied ceramic.

As for claim 6, as shown above adding the %wt of the thickener, ceramic and foaming agent results in a slurry being comprised of at least 19%wt of said components and up to 46%wt.

Claim 10 is rejected under 35 U.S.C. 103(a) as being unpatentable over Imura (GB 2348872) or Imura (US 6,340,648) in view of Ask a Scientist: Temperature and Surface Tension or article titled Surface Tension, both referred to as NPL, and in further view of WO 98/15505 ('505); or JP 63-40782 (782) in view of Ask a Scientist: Temperature and Surface Tension article titled Surface Tension, both referred to as

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NPL and in further view of WO 98/15505 ('505). The British and US patent of Imura and JP '782 are silent disclosing the claimed step of passing gas through the slurry of ceramics, foaming agent and thickener to forth the desired froth. However, '505 discloses a method of stirring the claimed slurry and introducing air to provide froth, see example 1 of '505 and subsequently form artificial body parts, bone.

At the time the invention was made it would have been obvious to a person of ordinary skill in the art to introduce air into the slurry of Imura or '782 as taught by '505 in order to promote froth formation.

It is clear from the disclosure of '505 that froth formation can be aided by the introduction of air, hence it would be obvious to a person of ordinary skill in the art to have done so in order to promote bubble formation as sought by Imura and '782.

Allowable Subject Matter

The indicated allowability of cancelled claim 8 is withdrawn in view of the newly discovered reference(s) to Ask a Scientist: Temperature and Surface Tension and article titled Surface Tension, both referred to as NPL. Rejections based on the newly cited reference(s) follow.

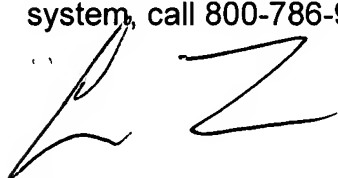
Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Carlos Lopez whose telephone number is 571.272.1193. The examiner can normally be reached on Mon.-Fri. 8am - 5pm.

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If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Steven Griffin can be reached on 571.272.1189. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.



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